

We claim:

1. A metallic alloy containing nano-crystals smaller than 100 nanometers having an identical crystal orientation, said alloy having a composition which deviates from a stoichiometric composition toward easier production of a precipitate by about 1 to 5%.

5 2. An alloy according to claim 1, wherein at least ten thousand of the nano-crystals have the identical orientation.

10 3. An alloy according to claim 1, wherein said nano crystal has a diameter within a range of from about 10 to 60 nm and the crystal grain has a diameter within a range of from about 1 to 10 μm .

15 4. An alloy according to claim 3, wherein said alloy is a Ti-Ni alloy, a Ti-Co alloy, a Ti-Al alloy or an Fe-Al alloy.

5 5. An alloy according to claim 1, wherein said alloy is a Ti-Ni alloy, a Ti-Co alloy, a Ti-Al alloy or an Fe-Al alloy.

20 6. A method of preparing an alloy-based nano-crystal texture in which, in an alloy capable of forming an amorphous state, nano-scale crystals are present as a crystal texture as arranged in an identical crystal orientation, comprising the step of heating an amorphous alloy at a temperature lower than the crystallization temperature.

25 7. A method of preparing an alloy-based nano-crystal texture according to claim 6, wherein the composition deviates from the stoichiometric composition toward easier production of a precipitate by about 1 to 5%.